

ABSTRACT

COHERENT OPTICAL DETECTOR

AND COHERENT COMMUNICATION SYSTEM AND METHOD

An optical device is provided with first and second inputs. A first coupler coupled is coupled to the first input and produces at least a first and second
5 output. A second coupler is coupled to the second input and produces at least a first and second output. A third coupler is coupled to the first output of the first coupler and to the first output of the second coupler. A fourth coupler is coupled to the second output of the first coupler and to the second output of the second coupler. First and second crossing waveguides are provided with an angle
10 selected to minimize crosstalk and losses between the first and second cross waveguides. The first crossing waveguide connects one of the first or second outputs from the first coupler with an input of the fourth coupler. The second crossing waveguide connects one of the first or second outputs from the second coupler with an input of the third coupler. A first phase shifter is coupled to the
15 first and second waveguides. The first and second waveguides connect one of the outputs of the first or second coupler and one of the inputs of the third or fourth couplers. The first, second, third and fourth couplers, the two crossing waveguides and the phase shifter are each formed as part of a single planar chip made of an electro-optical material.